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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,888	01/07/2002	Bill M. Culbertson	22727/04083	8873

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EXAMINER

YOON, TAE H

ART UNIT PAPER NUMBER

1714

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,888

Applicant(s)

CULBERTSON ET AL.

Examiner

Tae H. Yoon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37 and 39-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37 and 39-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim is dependent on cancelled claim 38 and thus is indefinite.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 37, 40 and 41 are rejected 35 U.S.C. 102(b) as anticipated by Denzinger et al (US 5,175,361).

Applicant recites vinyl monomers excluding acrylamide example 24 of Denzinger et al. However, Denzinger et al teach starting monomer c) at col. 2, lines 33-41 wherein 13 species are recited including methacrylamide. Thus, the use of said methacrylamide in example 24 of Denzinger et al would be anticipation since choice is very limited. See

In re Arkley, 455 f2d 586, 172 USPQ 524 (CCPA 1972); **In re Petering**, 301 F2d 676, 133 USPQ 275 (CCPA 1962).

Thus, the instant invention lacks novelty.

Claims 37, 39-41, 43 and 48-54 are rejected under 35 U.S.C. 103(a) as obvious over Xie et al (J.M.S.-Pure. Appl. Chem., A35 (4), pp 547-561 (1998) or Culbertson et al (ACS Symposium Series, 755, 2000, pp. 222-232) in view of Culbertson et al (US 5,369,142).

Rejection is maintained for reason of record with following response.

Applicant asserts that the teaching of Xie et al (some free COOH groups remain unreacted and metal ions are increasingly hindered in their movement to react at carboxyl sites) teaches away from using maleic acid. But the examiner disagrees with applicant's position and applicant failed to mention additional teaching at page 555. Xie et al further teach that the presence of NVP moiety provides a greater chance of interacting with metal ions for unreacted COOH groups, and thus the use of maleic acid would be a *prima facie* obviousness. Applicant asserts that there is no motivation to use of a higher concentration of acid groups such as maleic acid in lieu of itaconic acid, but said maleic acid does not provide a higher concentration of acid groups since both maleic acid and itaconic acid are diacids contrary to applicant's assertion. Applicant further asserts that Culbertson et al (US 5,369,142) do not teach terpolymer of acrylic acid, maleic acid and N-vinyl pyrrolidone, and it is true. That is why the rejection is under 103 (a) rather than 102 (b) under Culbertson et al (US 5,369,142). Again, note

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that Culbertson et al (US 5,369,142) equate said maleic acid and itaconic acid for dental applications.

Claims 37 and 39-55 are rejected under 35 U.S.C. 103(a) as obvious over Xie et al (J.M.S.-Pure. Appl. Chem., A35 (10), pp 1631-1650 (1998) in view of Culbertson et al (US 5,369,142).

Rejection is maintained for reason of record with above response.

Again, the examiner disagrees with applicant's position and applicant failed to mention additional teaching at page 1616.

Claims 37, 40-42, 50, 51, 53 and 54 are rejected under 35 U.S.C. 103(a) as obvious over Sherry et al (US 6,716,805).

Sherry et al teach copolymers of a mixture of hydrophilic monomers at col. 7, line 65 to col. 8, line 14 wherein acrylic acid, maleic acid, vinyl caprolactam and vinyl imidazole are taught. VLC moiety of claims 37 and 42 is not required since it is an optional component. Also, the inorganic glass powder of claim 50 is an optional component. Dental application is an intended use and has no probative value.

It would have been obvious to one of ordinary skill in the art at the time of invention to employ acrylic acid, maleic acid and vinyl caprolactam (or vinyl imidazole) in the instant amounts in making copolymers in Sherry et al since Sherry et al teach such modification and the teaching of Sherry et al encompasses various mole percents

of monomers and since choosing monomers from the list is a *prima facie* obviousness absent showing otherwise.

Claims 37, 39-42 and 50-54 are rejected under 35 U.S.C. 103(a) as obvious over Montague et al (US 5,021,525).

Montague et al teach hydrophilic polymers from monomers at col. 2, line 52 to col. 3, line 22 wherein acrylic acid, maleic acid and vinyl pyrrolidone and mixtures thereof are taught. VLC moiety of claims 37 and 42 is not required since it is an optional component. Also, the inorganic glass powder of claim 50 is an optional component. Dental application is an intended use and has no probative value.

It would have been obvious to one of ordinary skill in the art at the time of invention to employ acrylic acid, maleic acid and vinyl pyrrolidone in the instant amounts in making copolymers in Montague et al since Montague et al teach such modification and the teaching of Montague et al encompasses various mole percents of monomers and since choosing monomers from the list is a *prima facie* obviousness absent showing otherwise.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H. Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Tae H Yoon
Primary Examiner
Art Unit 1714

THY/October 24, 2006